

CLAIMS

What is claimed is:

1. A method of removing liquid from a composition, the method comprising:
 - (a) agitating the composition while removing liquid until the composition enters a cohesive phase;
 - (b) halting agitation;
 - (c) removing liquid from the composition in the absence of agitation until the composition passes through the cohesive phase;
 - (d) resuming agitation; and
 - (e) removing liquid from the composition while agitating the composition until the solids content of the composition reaches a pre-determined level.
2. The method of claim 1 wherein the composition is agitated at a pressure P1 and the liquid is removed from the composition in the absence of agitation at a pressure P2, wherein P2 is less than P1.
3. The method of claim 2 wherein P2 is less than atmospheric pressure.
4. The method of claim 3 wherein P2 is less than about 60 mbar absolute.
5. The method of claim 4 wherein P2 is less than about 13 mbar absolute.
6. The method of claim 2 wherein P1 is less than atmospheric pressure.
7. The method of claim 6 wherein P1 is about 80 to 480 mbar absolute.

8. The method of claim 6 wherein P1 is about 65 to 160 mbar absolute.
9. The method of claim 1 wherein the composition is agitated at a temperature T1 and the liquid is removed from the composition in the absence of agitation at a temperature T2, wherein T2 is less than T1.
- 5 10. The method of claim 9 wherein T1 is about 30 to 80°C.
11. The method of claim 10 wherein T1 is about 60 to 70°C.
12. The method of claim 9 wherein T2 is less than about 60°C.
13. The method of claim 12 wherein T2 is about 20 to 60°C.
- 10 14. The method of claim 1 wherein agitation is resumed at pressure P3, wherein P3 is less than atmospheric pressure.
- 15 15. The method of claim 14 wherein P3 is about 50 to 200 mbar absolute.
16. The method of claim 1 wherein the composition is agitated at a pressure P1 prior to entering the cohesive phase, the liquid is removed from the composition in the absence of agitation at a pressure P2, and agitation is resumed at pressure P3, wherein P3 is substantially equal to P2.
17. The method of claim 16 wherein P2 and P3 are each less than about 60 mbar absolute.
18. The method of claim 1 wherein the composition is agitated at a pressure P1 prior to entering the cohesive phase, the liquid is removed from the composition in the

2025-04-20 10:20:20

absence of agitation at a pressure P2, and agitation is resumed at pressure P3, wherein P3 is substantially equal to P1.

19. The method of claim 18 wherein P1 and P3 are each about 50 to 200 mbar absolute.
- 5 20. The method of claim 1 wherein the composition is agitated at a temperature T1, the liquid is removed from the composition in the absence of agitation at a temperature T2, and agitation is resumed at a temperature T3 after the composition passes through the cohesive phase, wherein T3 is less than T1.
21. The method of claim 20 wherein T3 is about 30 to 60°C.
- 10 22. The method of claim 20 wherein T1 is about 60 to 70°C.
23. The method of claim 1 wherein the composition is agitated at a temperature T1, the liquid is removed from the composition in the absence of agitation at a temperature T2, and agitation is resumed at a temperature T3 after the composition passes through the cohesive phase, wherein T3 is greater than T2.
- 15 24. The method of claim 1 wherein the composition comprises a polymer.
25. The method of claim 24 wherein the polymer comprises a cross-linked polymer.
26. The method of claim 1 wherein the composition comprises a hydrogel.
27. The method of claim 26 wherein the hydrogel comprises an organic polymer hydrogel used as an active pharmaceutical ingredient.

28. The method of claim 27 wherein the polymer hydrogel comprises a cross-linked poly(allylamine).
29. The method of claim 28 wherein the cross-linked poly(allylamine) comprises epichlorohydrin crosslinked poly(allylamine hydrochloride).
- 5 30. The method of claim 1 wherein the liquid is removed from the composition in the absence of agitation for at least about 30 minutes.
31. The method of claim 30 wherein the liquid is removed from the composition in the absence of agitation for at least about one hour.
- 10 32. A method of removing liquid from a composition comprising a cross-linked poly(allylamine), the method comprising:
- (a) agitating the composition at a pressure, P1, about 65 to 160 mbar absolute and at a temperature, T1, about 60 to 70°C while removing liquid until the composition enters a cohesive phase;
- (b) halting agitation;
- 15 (c) removing liquid from the composition at a pressure, P2, less than about 60 mbar absolute and at a temperature, T2, less than about 60°C in the absence of agitation;
- (d) resuming agitation once the composition has passed through the cohesive phase; and
- 20 (e) removing liquid from the composition while agitating the composition until the solids content of the composition reaches a pre-determined level;
- wherein the liquid is removed from the composition in the absence of agitation for at least 30 minutes.

2025-03-20 10:47:40

33. The method of claim 32 wherein the cross-linked poly(allylamine) comprises epichlorohydrin cross-linked poly(allylamine hydrochloride).
34. The method of claim 32 wherein P1 is about 110 to 140 mbar absolute.
35. The method of claim 32 wherein T1 is about 65°C.
- 5 36. The method of claim 32 wherein the liquid is removed from the composition in the absence of agitation for at least one hour.

2024-03-20 10:44:00